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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,552	11/21/2003	Yoshio Takami	245651US2	9239

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EXAMINER	
AKANBI, ISIAKA O	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/717,552	TAKAMI, YOSHIO
	Examiner	Art Unit
	Isiaka O. Akanbi	2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-8,12-17,21-25,29-31,33-35 and 37-50* is/are rejected.

7)☐ Claim(s) *2,3,9-11,18-20,26-28,32 and 36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *21 November 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement file 21 November 2003 has been entered and reference considered by the examiner.

Drawings

The examiner approves the drawings filed 21 November 2003.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-8, 12-17, 21-25, 29-31, 33-35 and 37-50 are rejected under 35 U.S.C. 102(e) as being anticipated by Wack et al (6,782,337 B2).

As regard to claims 1, 15, 31 and 39, Wack discloses an apparatus/method for determining characteristics of a thin film comprising of the following:

irradiating with a monitor light (44) ray at least position of a processing target (40) which is irradiated with a light energy which can perform predetermined processing or finishing, detecting a reflected light ray generated from the processing target by the monitor light ray by a light sensing mechanism having a plurality of substantially continuous light sensing elements and measuring a temporal change in an angle distribution an intensity of the reflected light detected by the light sensing mechanism (figs. 3-6, 12 and 23-25)(col. 27, line 64-col. 28, line1-3)(col. 37, line 19-36)(col. 50, line 49-64).

As to claim 4, Wack discloses wherein the data is indicated based on the refractive index and the extinction coefficient (col. 107, line 22-26).

As to claims 5 and 12, Wack discloses wherein the thin film includes at least one of a thin film containing silicon as a main component, an amorphous silicon hydride thin film, a sputtered silicon thin film, a silicon germanium thin film, and a dehydrated amorphous silicon thin film (col. 35, line 36-38).

As to claims 6, 13, 34 and 38, Wack discloses wherein the monitor light ray includes laser light ray and is condensed on the thin film through lens system (col. 38, line 3-6)(col. 38, line 26-42).

As to claims 7 and 14, Wack discloses wherein the monitor light includes a light ray that a direction polarization is set in a specific direction (col. 26, line 4-7)(fig. 11).

As to claims 8, 16, 23-24 and 35, Wack discloses calculating a temporal change refractive index and an extinction coefficient of the processing target based on the measured temporal change in the angle distribution of the intensity the reflected light ray (col. 40, line 32-49).

As to claims 17 and 25, Wack discloses a light multiplication mechanism (46)(i.e. photomultiplier) which multiplies an intensity of the reflected light ray generated from the processing target irradiated with the monitor light ray after this light enters the light sensing mechanism (col. 38, line 15-26).

As to claims 21 and 29, Wack discloses wherein the light multiplication mechanism (46)(i.e. photomultiplier) includes an image intensifier.

As to claims 22 and 30, Wack discloses wherein the light multiplication mechanism (46)(i.e. photomultiplier) includes a Microchannel Plate.

As to claims 33 and 37, Wack discloses wherein the reflected light measurement device (46)(i.e. photomultiplier) includes photoelectric conversion portion which generates electrons corresponding to the reflected light ray received on the photoelectric surface, and an electric field generation portion which passes the generated electrons through an electric field which varies with time (col. 37, line 19-24).

As to claims 40, 42, 44 and 46, Wack discloses a signal processing device (54) which calculates a temporal change in a refractive index and an extinction coefficient of the thin film based on the temporal change the angle distribution of the intensity of the reflected light ray detected by the first and second light measurement devices (figs. 7 and 12).

As to claims 41, 43 and 45, Wack discloses a monitor light irradiator (44) which irradiates a monitor light ray having a polarization light in a direction of the polarization light is a

predetermined direction, and the monitor light ray is condensed on the thin film through a lens system (48), a first light measurement device (46) which receives a reflected light ray of the monitor light ray from the thin film, has a first light sensing surface having a plurality of substantially continuous light sensing elements, and measures a temporal change in an angle distribution an intensity of the reflected light ray and a second light measurement device (46) which receives reflected light ray of the monitor light ray from the thin film, has a second light sensing surface having a plurality of substantially continuous light sensing elements each arranged orthogonal to the first light measurement device, and measures temporal change an angle distribution of an intensity of the reflected light ray (fig. 7)(col. 27, line 64-col. 28, line1-3)(col. 37, line 19-36)(col. 50, line 49-64).

As to claims 47-50, Wack discloses a method for determining characteristics of a thin film, comprising:

irradiating with a monitor light ray includes a polarization light in a direction of the polarization is a predetermined direction which is irradiated with a light energy which can perform predetermined processing or finishing, detecting a reflected light ray generated from the processing target by the polarization light of the monitor light ray by a light sensing mechanism having a plurality of substantially continuous light sensing elements and measuring a temporal change in an angle distribution of an intensity of the reflected the light detected by the light sensing mechanism (figs. 7 and 12)(col. 27, line 64-col. 28, line1-3)(col. 37, line 19-36)(col. 50, line 49-64).

Allowable Subject Matter

Claims 2-3, 9-11, 18-20, 26-28, 32 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claims 2-3, 9-10, 32 and 36, the prior art of record, taken alone or in combination, fails to disclose or render obvious the light sensing mechanism includes a strip-like fluorescence surface, which extends in one arbitrary direction. Additionally, the prior art of record, taken alone or in combination, fails to disclose or render obvious the generated electrons to the fluorescence surface in strip-like shape extending in one arbitrary direction by an electric field which varies

with time, and obtain data for each time acquired on the fluorescence surface. Claim 11 is allowable by virtue of its dependency.

As to claims 18-20 and 26-28, the prior art of record, taken alone or in combination, fails to disclose or render obvious the reflected light measurement mechanism includes a streak camera.

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references listed in the attached form PTO-892 teach of other prior art apparatus/method for determining characteristics of a thin film that may anticipate or obviate the claims of the applicant's invention.

Conclusion

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isiaka Akanbi whose telephone number is (571) 272-8658. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isiaka Akanbi
February 21, 2006

Gregory J. Toatley, Jr.
Supervisory Patent Examiner
2/17/06